Minutes of the Nineteenth Meeting
of the
Laboratory Operations Board

March 9, 2000

Washington, DC

John McTague, External Co Chair of the Laboratory Operations Board (LOB), opened the meeting. He welcomed those in attendance and announced that the next meeting of the LOB would be held at the Oak Ridge National Laboratory on June 27 and 28, 2000. Noting that Under Secretary Moniz, the Departmental Co-Chair, was leaving for Moscow immediately following the morning session and lunch, Dr. McTague turned the meeting over to him.

Under Secretary Moniz summarized a number of developments that had occurred since the last LOB meeting. He noted that the budget request for FY 2001 was on the Hill. Dr. Moniz indicated that Mike Telson, the DOE's Chief Financial Officer, would be going over key elements of the budget later in the meeting. He concluded that it was basically a strong budget. The National Nuclear Security Administration (NNSA) was stood up on March 1, 2000. The name of John Gorman, Deputy Director of the CIA, had been sent to the President to head the NNSA. Tom Gioconda's title was changed to Acting Deputy Administrator for Defense Programs of the NNSA.

Dr. Moniz welcomed Jim Decker to the LOB as the Acting Director for the Department of Science. He noted that this is Decker's third time to serve in this capacity.

The major issue for the Department at the moment mentioned by Dr. Moniz was the rise in the price of oil to $34.00 per barrel. Focusing on this issue was forcing the Secretary to travel extensively to deal with the issue.

The first agenda item for the Nineteenth Meeting was the Thirty-Day Review of the Stockpile Stewardship Program (SSP) and its impact on the lab. The Under Secretary described the Review as short and intense. The Departmental context for the review included the Senate rejection of the comprehensive Test Ban Treaty, the reorganization and standing up of the NNSA, the recent increased focus on national security, and programmatic reductions.

The charge for the review was to assess the health and status of the weapons complex and the status of personnel to maintain the stockpile. Representatives from the Office of the Secretary of Defense, the Defense Threat Reduction Agency, the Institute for Defense Analysis, the three weapons laboratories, STRATCOM, and the University of California at Berkeley attended a retreat that became the centerpiece for the review.

A major conclusion of the review related to the need to re-examine how military requirements are generated. The undisciplined requirement process had resulted in a large accumulation of unexpected requirements in a program that lacks flexibility.

The task of the Stockpile Stewardship Program has grown from one of caring for a few thousand weapons and surveillance into one of refurbishing, rebuilding, and extending the life of the weapons by 20 to 30 years. Consequently, there is much more weapons work at the labs. The new requirements have generated a need for exploratory science in the stockpile program, which has meant developing the tools, such as ASCI, needed do the job as it has been redefined. The program is now structured for success.

However, because the research and security environments are discouragers for recruiting scientists, there is a people challenge. The review made 15 recommendations covering human resource needs. The members agreed that there is a current lack of appropriate programs at the nation's colleges and universities.

John Armstrong commented that universities are no longer offering programs in nuclear engineering. Under Secretary Moniz reinforced this point, saying that his own institution, MIT, had downsized offerings in nuclear science and that nuclear engineering was focused more on radiological studies and nuclear policy. Armstrong also reported that the demand for people with degrees in nuclear science was stronger now than it had been in 30 years because of the nuclear energy industry. He suggested that new programs in nuclear research and proposals for advanced research could revitalize the science in the nuclear programs.

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Moniz stated that he thought that there was a small but hard core of people who were doing exploratory research, but that because of the perception that there was no technological future in the nuclear field it was hard to attract new students. John McTague mentioned that the perception that exploratory research was fluff was a problem.

Under Secretary Moniz expressed his belief that the LOB's laboratory directed research and development (LDRD) report was very important in countering that perception. He referred to the report's finding that a 6 percent level of support for LDRD was a bare minimum and that private industry supported this kind of research at about 15 percent. He asked members for their support in raising DOE's research level to at least 10 percent.

Returning to the 30-Day Review, he stated that the infrastructure, specifically equipment and production plants, needed refurbishment to be safer and more secure. He concluded by stating that besides keeping a proper balance between the people resource and the security requirements, the Department must maintain a strong focus on the science mission with regard to the SSP. The report is, according to Moniz, stimulating action on the requirements issue and will, in one to two years, provide for flexibility and contingency planning. Something like the LDRD program will be provided for the plant facilities in the SSP.

Dr. Paul Gilman asked if the LDRD report had been briefed on the Hill. Dr. Moniz replied that Congressional Affairs has the report and has had opportunity to raise support for LDRD and that the issue of Environmental Management LDRD has been raised to a number of members. Dr. Gilman asked if it would be useful for Dr. Fleury to brief appropriate Department of Defense people. After some discussion, the focus returned to the SSP. Dr. Moniz concluded his brief by stating that the 30-Day Review has received strong support on the Hill and in DOD. The Weapons Council is now having a requirements summit, which will be ongoing for five months.

Mike Telson, the DOE Chief Financial Officer, reported that the Department's position regarding LDRD was strong because DOE was addressing the problems identified by the Congress. For example, the Idaho Laboratory is not being allowed LDRD funding, but DOE is asking that the other LDRD restrictions be lifted.

Dr. Moniz referred to the EM LDRD problem as an egregious utilization of funds that resulted in the actions taken. He then asked Mr. Telson to update the LOB on budget issues.

Mr. Telson referred the members to the budget materials that had been provided. He said that the Department has a very good budget for FY 2001, with a 9.1 percent increase over 2000. The average increase for the government overall was four percent. DOE's theme for the year was chosen to reflect its role as a science agency. The Secretary hoped, with the help of the LOB and other people and organizations, to raise the country's understanding of the role of the Department in the national science and technology enterprise. According to Mr. Telson, forty percent of DOE's budget supports scientific research and development, up about eight percent from FY 2000. Mr. Telson then addressed individual business lines, particularly environmental quality (up 2.5%) and science and technology (up 12%). The major question mentioned by Mr. Telson was what kind of cap on expenditures Congress might work with.

Dr. Moniz spoke to new directions in the Department, including the issue of the electric grid and natural gas infrastructure and the idea of integrated and coupled grids. He suggested that market place drivers have shaped the Research and Development (R&D) process as it has emerged from the R&D portfolios. He also indicated that pending Congressional action, the Department's energy research investment strategy will be oriented toward end-use technologies, such as fuel cells, re-newables, and micro turbulence. He said the Department will also look at systems analysis and simulations to identify systems problems and determine the grid structure required and technology needed for interconnection and control sensors.

Another matter of interest to the Secretary identified by Dr. Moniz was the expansion of the life sciences. He suggested that Dr. Decker describe the direction being taken by advanced computing and simulation.

In response to questions by John Armstrong and Al MacLachlan, Dr. Decker indicated that the Office of Science budget request for advanced computing initiatives in non-

defense areas totals over $90 million. An additional $50 million has been put into the Advanced Computing Research Program.

Dr. Savitz asked for clarification on the emphasis by the Office of Science (SC) on items that appeared closely related to Energy Efficiency. Dr. Decker explained that a portion of nanotechnology could be expected to impact energy efficiency through lighter, stronger materials. Dr. Moniz indicated that the work by SC focussed on fundamental materials, and for now was appropriate for SC because it is basic research. He said it was very different the kind of programs funded by Energy Efficiency. In response to Dr. Savitz's questions concerning program funding for Environmental Efficiency and SC in nanotechnology and the National Nanotechnology Initiative, Dr. Madia said that the two programs seemed well connected on this initiative.

John Armstrong expressed concern that the science laboratories, as well as the weapons labs, have a multi-billion-dollar infrastructure problem. Dr. Madia underscored the comment, saying that the Department should consider a budget submission addressing the facility infrastructure needs.

Mr. Telson used the discussion to bring up an initiative called the Asset Reduction and Reinvestment Incentive Fund. The proposed legislation builds on earlier efforts made by the department to reward the laboratories for responsible management of properties by establishing a fund which could become self-supporting and which the laboratories could use to finance improvements needed to prepare surplus or unneeded property for sale. Proceeds in and above the amount reimbursed to the fund could be retained by the lab for reinvestment in new equipment. The program is targeted to fund small-scale projects

Dr. Moniz raised two issues relevant to the LOB. First, he hopes the Board will consider the science involved in environmental cleanup. A report issued by the Academy of Engineering addressed the serious under-funding in environmental science and technology. Second, the Federal Technology Center had been renamed the National Energy Technology Laboratory. There will be an increase in the in-house research capacity at this new lab. Fossil Energy represents 86% of the energy currently used in this country. Dr. Moniz hopes the FE and EE will put together a program focussed on natural gas. The group might want to look at this in greater detail.

The Board recessed for a break at 10:42 and reconvened at 11:03.

Mr. Telson asked for time to make a final point. DOE wants to stress its role in American science and technology. The American public does not understand the importance of DOE's role in this regard, and DOE needs the support of the External Members in making this role obvious to the public.

Dr. McTague made the point that overall support in the Federal budget across all agencies for science and technology is down; for example, DOD had a 10% decrease.

David Heyman summarized his work on Technology Transfer and Rulemaking. His presentation was a summary of a 5-month, DOE-wide study. The main finding was that DOE is doing a good job of facilitating technology transfer (moving publicly funded research to the private sector).

The report noted that DOE is number one in Cooperative Research and Development Agreements (CRADA) with about $500M in Work for Others; number two in licensing, and that there are 18,000 users per year coming to DOE facilities. Areas identified as needing more attention included the technology partnering, which has declined. The number of CRADA has also decreased. The review interpreted these findings as indicating that industry partners do not perceive DOE to be a reliable partner. The major roadblock identified was that the process to establish the partnerships is cumbersome and slow.

The review recommended that the Research and Development Council establish a Technology Transfer Working Group to coordinate policy issues and that a senior advisor be designated to work with the Working Group. A key result of the review has been that partnership opportunities have been made more accessible and partnerships require less time to initiate. There is an increased focus on disseminating information on partnership opportunities with DOE and on establishing consistent guidelines. The Working Group is developing performance measures that will be implemented through contract reform, and ombudsmen will be identified at each lab to resolve disputes. This may help to address the perception that the DOE is competing with the private sector. The Technology Transfer review noted that the Department must educate the public about the impact of the innovation cycle on the market place.

Some discussion followed about the competitiveness disputes and their root causes.

John Armstrong suggested that the Department compile a short list of technology transfer success stories.

Next on the agenda, Merna Hurd gave a summary of the evolving management system in DOE. She reminded the Board that the Assistant Secretary realigned the Department's management structure to strengthen line management responsibility and accountability last year. As a result of that reorganization, field offices now report to a lead PSO and then the CSO. The cognizant PSO is responsible for facilities. There is now a chief operating officer in each of the 11 key offices.

The Field Management Council (FMC) assists in the integration of issues between programs and to integrate staff support offices with the line management. The FMC meets once a month to discuss issues needing resolution, such as the security issues. The FMC reviews directives and data calls in a 5-day review process.

There is also a 30-day review process for issues which are more difficult to implement.

The COO Council has a monthly review of accomplishments for each program, with focus on key issues and projects. The COO Council looks at operations issues, such as the performance-based contracting. This process is evolving with the HQ and Program offices providing performance expectations up front so that the performance measures and fee structure in contracts can be related to the program functions…

The Office of Engineering Construction Management oversees projects on the COO Watch List. Policies are being set up and criteria have been proposed for monitoring projects throughout the acquisition process from mission statement to start of operations. A similar structure for managing smaller projects is being put in place at the PSO level. Dr. Turner observed that from the field perspective, the FMC is working. One of the Department's historic problems has been to start programs before a baseline was established, and this shortcoming was being addressed.

Ms. Hurd agreed. She summarized the actions being taken to fix the problem and to stress up-front planning.

The Board broke for lunch at 12:00 and reconvened at 1:12.

The afternoon session began by looking at policies related to the so-called Tier II laboratories. Dr. McTague led off the session by asking the LOB to consider what should be regarded as the appropriate operating policies with respect to security and counterintelligence. The presentations to be made by the DOE Chief Information Officer (CIO) and a briefing developed by the Acting Director of the Office of Science and a Tier II laboratory director, Dr. Bill Madia, were related to this question.

The DOE CIO, John Gilligan, introduced his presentation by saying that he was there to give a cybersecurity update on the status of the DOE's efforts to establish policy, metrics, architecture, cyber security program plans, and future directions. He reported that his office had issued a number of policies through the Field Management Council, and was now attempting to develop guidelines for an integrated security management concept. The guidelines under development would address how to secure removable media, how to establish web site security, and how to report incidents.

Mr. Gilligan provided a chart showing the number of policies that were being followed by the program offices. He stressed that these metrics did not address the effectiveness of the policies, only that the program offices were in compliance. The CIO stated that the objective DOE architecture will be "thin," meaning there will be minimal mandatory requirements. Each site will be allowed to tailor its system to its individual needs, with the CIO office providing benchmarks as examples. For example, boundary protection to review and monitor access into an enclave will be determined by the site's requirements and risk assessment.

Dr. Armstrong asked if, in the recent spate of denial of service attacks, any of DOE's systems had been highjacked to participate. Mr. Gilligan stated in response that a limited

number, perhaps two, incidents were reported. But he said an exact number could not be determined. Mr. Gilligan pointed out that the DOE's sites are susceptible to such attacks.

The money budgeted for security is under the control of the Headquarters Security Operations. However, Mr. Gilligan stated that the money would go to the sites as soon as they demonstrate that they have a cyber security plan. The plan asked for the sites to show how the money would be spent and the criteria for success to be achieved by the end of the fiscal year. Mr. Gilligan wants to see a peer review process initiated Department of Energy-wide to review the sites.

Dr. McTague asked if there were recruitment problems in network security jobs. Mr. Gilligan replied that the turn over rate is high.

The last point made in the presentation was that sites with old configurations were more susceptible to attack. Mr. Gilligan said that the core software must be managed at each site if security is to be enforced.

Policy Issues Involving the Tier 2 Laboratories.

The question posed by Dr. Madia was "How do you balance the science and technology mission objectives against the need to protect the physical assets and micro assets of the system?" In answering this question, he suggested that three continuums must be considered: the geographical or physical proximity of different types of work, the level of national security involved in (unclassified to highly classified) the work or the proprietary nature of the work being done, and the people—citizen or foreign national, permanent resident or visiting foreign national, sensitive or non-sensitive country.

At Oak Ridge, for example, there is the National Laboratory itself, with such eminent user facilities as the High Flex Isotope Reactor. It is within walking distance of the Nation's repository for Uranium 233, a classified area. What is the right level of focus for security if you have an open user facility and your mission is to promote broad scientific and technological collaborations among leading world scientists? Scientists argue that if you lock every thing down, no science will be done.

In the contracts written with the laboratories, physical security is addressed in terms of a national security importance rating. A tier system is not defined in a codified approach. However, the weapons labs, PNNL and ORNL have been defined in discussions as Tier I because of their significant security work. The Tier III labs are defined as open source labs in the letter by the Secretary, and the Berkeley exemption.

At the moment, several labs are described as not Tier I and not Tier III. These large laboratories have fully open facilities where broad international collaborations are encouraged. Yet at those labs, there is some work that must be protected. The question becomes one of how this protection should be effected.

Realistically, according to Dr. Madia, it is desirable to allow the broad international collaborations at the Tier I labs as well. The DOE science and technology missions demand this continuum within a system that controls access to some selected data by some workers in a rational security framework. In accomplishing this objective, some questions need to be answered:

How do you fulfill the science mission while protecting assets? What are the right principles?

What is the basic functionality for the control system? Is it physical control? Is it by the type of work you do or the type of people who work on the project?

If the lab director is accountable for results but somebody else decides on the funding level for the program, how can the lab director be expected to perform to a standard?

Is a transparent security system that allows scientific openness while maintaining control of sensitive data possible?

Dr. Madia stated that obtaining the perspective of the LOB's external members on a policy approach would be helpful.

Mr. Bob Walsh, Deputy Director of Security Affairs assured the Board that he was noting the concerns being expressed. He pointed out that everything their office was doing was going through the Field Management Council and undergoing the reviews described by Merna Herd.

Next on the agenda, David Klaus discussed issues related to the standing up of the National Nuclear Security Administration. He headed implementation team in its day-to-day operations in developing the Implementation Plan sent to Congress in January 2000.

He described the effort as one of complying with the NNSA Statutes and ensuring that the national security and other missions of the Department could be accomplished. A major concern was to implement the Statute in a manner that maintained the management reforms put into place in the Department in early 1999. A second concern was to maintain the synergy working between the Office of Science and other program offices and the national defense laboratories.

The legislation placed no limits inside the NNSA on employees to direct or control people in the Department outside the NNSA. But the Act prohibited the reverse. To keep the security reforms in place, Gen. Habiger is dual hatted so that there is no loss of momentum on the security reform.

Mr. Klaus noted that the Act created a second under secretary. In this administration, Dr. Moniz is the Under Secretary for Energy, Science, and Environment. He is also involved in Russian issues. A new administration may realign some of this.

The NNSA legislation provided that the labs report to the Deputy Administrator for Defense Programs. The Implementation Plan dual hatted the heads of the field operations offices that oversee the weapons labs. This action maintained the current reporting structure for the Department of Energy.

A major concern at the Department and expressed by the LOB was whether the implementation plan and departmental structure was such that the Office of Science, for example, could feel comfortable with investing in a long-term program at a weapons lab. Fears had been expressed that the Act could eventually create two cultures in the Department of Energy. Another concern voiced addressed if there would be disincentives for other program offices to go to the best place to have work done if that place was a weapons lab. A number of people had predicted that the change would affect the Department's recruiting in the future.

Despite some misgivings, the NNSA was stood up on March 1st. General Gordon's name was submitted for the position as NNSA Administrator.

Mr. Klaus noted that there were a number of areas in the statutes in which wording changes might be beneficial but will not be requested. The Secretary has been desirous that the Department appear to be in compliance so that the relationship with the Congress will not be adversely affected in ways which would hamper the Department's effectiveness. The Secretary has obtained Senator Domenici's assurance that he will change the wording concerning the Secretary's authority over the NNSA, changing the current wording that the Secretary's authority is "through the Administrator" and giving him direct authority. There will also be wording added establishing the NNSA administrator as a three-year term.

Mr. Klaus explained that the Implementation Plan explicitly stated that the performance of work for a non-weapons program done, for example, at Los Alamos for the Office of Science, was not a function of NNSA. This means that if LANL is performing work for the Office of Science, the Office of Science employees have authority to direct and control the work done at LANL that they pay for.

Some further discussion followed concerning the role of advisory boards and the possibility of MOUs to formalize relationships. Mr. Klaus thought such moves would be inadvisable and would create boundaries where none now existed.

Dr. McTague brought up the subject of future tasks for the LOB. Two have been identified and working groups will be formed in the next several weeks.

The first task is for the LOB External Members to assist the Department by looking at the potential of formalizing a tier structure for the laboratories and defining Tier II in the area of counter intelligence.

The second task mentioned would be to take a broad view of the appropriate principles for Performance Based Management as opposed to Performance Based Contracting in the Department.

The meeting adjourned at 2:42 p.m. EST.

Members Attending:

Ernest J. Moniz, Co-Chairman
John P. McTague, Co-Chairman

External Members

John Armstrong
Paul Gilman
Alexander MacLachlan
Maxine Savitz

Departmental Members:

James Decker
Richard Hopf
William Madia
Bruce Tarter
Michael Telson
James Turner